

Translation

PATENT COOPERATION TREATY

PCT

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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference B 14020.3 JC	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/FR2003/001943	International filing date (day/month/year) 24 juin 2003 (24.06.2003)	Priority date (day/month/year) 25 juin 2002 (25.06.2002)
International Patent Classification (IPC) or national classification and IPC G01N 29/20		
Applicant COMMISSARIAT A L'ENERGIE ATOMIQUE		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 5 sheets, including this cover sheet.
- ☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of \_\_\_\_\_ sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 14 janvier 2004 (14.01.2004)	Date of completion of this report 13 October 2004 (13.10.2004)
Name and mailing address of the IPEA/EP	Authorized officer
Facsimile No.	Telephone No.

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/FR2003/001943

## I. Basis of the report

### 1. With regard to the elements of the international application:\*

- ☐ the international application as originally filed
- ☒ the description:  
 pages \_\_\_\_\_ 1-8 \_\_\_\_\_, as originally filed  
 pages \_\_\_\_\_, filed with the demand  
 pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_
- ☒ the claims:  
 pages \_\_\_\_\_ 1-7 \_\_\_\_\_, as originally filed  
 pages \_\_\_\_\_, as amended (together with any statement under Article 19  
 pages \_\_\_\_\_, filed with the demand  
 pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_
- ☒ the drawings:  
 pages \_\_\_\_\_ 1/5-5/5 \_\_\_\_\_, as originally filed  
 pages \_\_\_\_\_, filed with the demand  
 pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_
- ☐ the sequence listing part of the description:  
 pages \_\_\_\_\_, as originally filed  
 pages \_\_\_\_\_, filed with the demand  
 pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_

### 2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language \_\_\_\_\_ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

### 3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

### 4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, Nos. \_\_\_\_\_
- ☐ the drawings, sheets/fig \_\_\_\_\_

### 5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).\*\*

\* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rule 70.16 and 70.17).

\*\* Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.  
PCT/FR 03/01943

## V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

### 1. Statement

Novelty (N)	Claims	1-7	YES
	Claims		NO
Inventive step (IS)	Claims	1-7	YES
	Claims		NO
Industrial applicability (IA)	Claims	1-7	YES
	Claims		NO

### 2. Citations and explanations

#### 1. Reference is made to the following documents:

D1: EP-A-0 250 291 (NOVATOME) 23 December 1987  
(1987-12-23);

D2: FR-A-2 271 581 (KERNFORSCHUNG GMBH GES FUER)  
12 December 1975 (1975-12-12).

#### 2. NOVELTY

2.1 Document D1, which is considered to be the prior art closest to the subject matter of claims 1 and 2 describes (the references between parentheses apply to said document) a device for immersing an ultrasonic transducer (17) in liquid metal, comprising a metal shell (24), which fully encases said transducer (17) and provides coupling between said transducer and the liquid metal (see claim 15).

2.2 It follows that the subject matter of claims 1 and 2 differs from this known device in that the transducer is located outside the chamber and contacts the liquid via a waveguide.

- 2.3 Document D2 also describes (the references between parentheses apply to said document) a device for immersing an ultrasonic transducer (5) in liquid metal, comprising a metal shell (18), which fully encases said transducer (5) and provides coupling between said transducer and the liquid metal (see figure 4).
- 2.4 It follows that the subject matter of claims 1 and 2 differs from this known device in that the transducer is located outside the chamber and contacts the liquid via a waveguide.
- 2.5 The subject matter of claims 1 and 2 is, therefore, novel (PCT Article 33(2)).

### 3. INVENTIVE STEP

- 3.1 The problem that the present invention is intended to solve is that of using an ultrasonic device to determine the wetting of a wall, or on the atomic-scale the adhesion of a liquid to a wall, in particular a liquid metal.
- 3.2 The solution to this problem, as proposed in claims 1 and 2 of the present application, is considered to involve an inventive step (PCT Article 33(3)) because it involves placing an object (2), which replicates the wall to be studied, in a measurement chamber (1) and carrying out measurements under laboratory conditions.
- 3.3 Neither cited document D1 nor D2 describes or suggests determining the wetting of a wall using an ultrasonic device specifically intended for that

purpose.

- 3.4 Document D1 describes a method for verifying the wetting of the outer surface of the shell (24) by measuring the ultrasonic impedance of the sensor in situ (see column 6, lines 3-6).
- 3.5 As a result, claims 1 and 2 fulfil the requirement of inventive step set forth in PCT Article 33(3).
4. Claims 3-7 are dependent on claim 1 and therefore also fulfil, as such, the PCT requirements of novelty and inventive step.